court recess, at which time he stood in an anteroom, partly away from a group of prisoners who had been testifying as to his sanity. Consistently, during court sessions, Sloper would stare when his face was up; but his position of choice was with face down, and his eye slits were normally narrowed and his eyes were not staring.

At the time of his arrest Sloper already carried his back arched slightly forward. As the months went by he walked with more of a bend. Also, he began at times to take up a position in which he sat with buttocks on heels, elbows on knees, and with hands held forward or on chin, or playing with hair, eyebrows, or face. He would raise his face and look from side to side and with eyes staring; then he would face the floor and lose the stare. When observed secretly in his cell this position, as described, might give way to more usual attitudes. Likewise, during certain of my examinations which dealt with the possibility of a prison sentence or a hospital stay replacing hanging, he assumed more average attitude. During the court recess above referred to, the patient stood quite erect in the anteroom. Certain of the staring and the attitudes and other findings I feel had in a measure gotten beyond the purely voluntary state and were hysterically motivated.

Sloper's speech and conversation seldom lost their relevancy. Very rarely they were some unintelligible mumblings. More often there would be a "Huh" or a "What." Also quite spontaneously during court proceedings he might state, "I don't want a trial—Judge Buck—I don't want a trial—he ain't dead—go ahead, what do I care—you are framing on me, and you know it"; or he might utter an oath or damn a witness. In conversation, very seldom was an answer other than logical and relevant. Sometimes there was a delay of as much as 30 to 45 seconds, but the answer would be quite to the point. Even at the height of his disturbance, it was possible to get from him statements which related to the killing of the officer, his guilt, his status, his mental condition, and his fate. All these data were in harmony with the facts of the case.

Sloper had been drawing pictures of hanging men, and of daggers and guns on the walls of his cell. He drew one such picture for me, that of a man being hanged, with rope in place, knot at side of neck, the subject with staring eyes and with tongue hanging out, and below, the word "Woodhall," the chief jailer. Asked to sign his name, he wrote quickly "B. S.," and turning gave a wise look, a slight laugh, and a full-face smile.

It is not possible at this time to go into detail concerning each of the factors developed in this case, but I would state that the most frank disturbances have been mentioned and that no symptoms which I interpreted as psychotic were found. Sloper had no phobias nor delusions; no more than the slight suspicion of pseudo-hallucinatory experiences. He had no mental disturbance out of keeping with external facts; no psychotic syndrome which would progressively tend to his own destruction mentally or physically or both, rather than the ultimate harm of the social group. His mental mechanisms of normal and abnormal sort were being set in motion, always by mental experiences which had actual and real counterparts in his environment. His situation was a definite one; he was facing execution. His faking and the neurosis were his and nature's efforts, respectively, to remove him from this most distressing situation, and the tendency was that he would be helped at the expense of others and society.

THE THERAPEUTICS OF SYPHILIS

By HOWARD MORROW *

Mercury given hypodermically after a course of arsphenamine or neoarsphenamine should be the routine treatment. Sulpharsphenamine should be confined to congenital lues and to patients who cannot have arsphenamine or neoarsphenamine given them. The bismuth preparations should be confined to late lues, especially those who have Wassermann-fast reactions, after courses of mercury and the arsenicals.

DISCUSSION *by Harry E. Alderson, San Francisco; Albert M. Meads, Oakland; Samuel Ayres, Jr., Los Angeles; Le Roy H. Briggs, San Francisco.*

IN 1905, just twenty years ago, Schaudinn and Hoffman reported the etiological factor of lues. In 1906 the complement fixation test for lues was reported by Wassermann. The technique was simplified by Noguchi a few years later. Noguchi also reported on the cultivation of the organism in 1911. In 1910 Ehrlich published the supposed cure for lues by salvarsan. These reports represent only a few of the experiments that have been carried on during the past two decades in regard to the etiology, the cure, and the prevention of syphilis.

Before the introduction of the modern arsenical preparations, syphilis was treated by means of mercurial injections, mercurial rubs, and mercury and iodide of potash given by mouth. Patients who were fortunate enough to have mercury given them hypodermically over a long period of time or who were given mercurial rubs by a proper method had a chance of being cured; but the unfortunate patients who were given mercury and iodide of potash by mouth were seldom cured. Most of the so-called cures were instances of temporary arrest of the infection, which condition has been demonstrated by spinal fluid examination and by the blood Wassermann. Mercury given by mouth and iodide of potash still have their places in the treatment of syphilis, but they should not be given with the expectation of a cure.

Mercury—The best methods for the administration of mercury are by intramuscular injection or by inunction. We prefer mercury salicylate for intramuscular use, and find that it is possible to give it as a routine without much pain. Mercury is probably as important as the arsenic products in the treatment of syphilis. It finishes up the work that arsphenamine has started. Every course of arsphenamine treatment should be followed by mercury therapy, and it should be given over a period of time about three times as long as that allowed

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for arsphenamine. Some physicians prefer the use of grey oil, and a few clinicians advocate the use of the soluble salts of mercury. Mercurial rubs or mercury given hypodermically are almost universally used in conjunction with the modern preparations of arsenic.

Iodide of Potash—In the early stages of syphilis potassium iodide is of little use. In late syphilis it is often of great value. It has no effect on the treponema pallida, but it removes the tissue reaction around them and thus permits the arsenic and mercury to destroy them. It is of great value in cardiovascular and central nervous system syphilis. Recently sodium iodide has been given intravenously, and this procedure is quite popular in some clinics.

During the great war it was impossible to secure salvarsan and neosalvarsan in America, so we were obliged to use the French preparation, arsenobenzol. Later on the secrets of their manufacture were secured by various wholesale chemists, and at the present time we have American-made salvarsan and neosalvarsan under the trade-name of arsphenamine and neoarsphenamine. Many preparations of these are made and sold by wholesale druggists, but we have used only those put out by the Dermatological Research Laboratories of Philadelphia and by the Metz Laboratories of New York.

Arsphenamine and *Neoarsphenamine* have their respective advocates. In private practice, and with our experiences at the University of California Medical School, these two drugs have proved of equal therapeutic value. Patients have improved clinically, and the serology has changed about equally with the two drugs. It has been our experience that jaundice is more likely to occur following the administration of neoarsphenamine than after the use of arsphenamine. Two patients who had received courses of arsphenamine, two years later developed typical primaries with motile spirocheta pallida. In the University of California luetic clinic, between January 1, 1925, and May 1, 1925, 326 arsphenamine and 215 neoarsphenamine injections were given. The conditions under which neoarsphenamine have been used are:

1. When the veins of the patient were small or thrombosed, and a smaller amount of fluid could be injected more easily than a large quantity of fluid.

2. Whenever a patient with primary syphilis reported for his initial treatment it was found more practical to give neoarsphenamine immediately.

3. When patients arrived at the clinic after the hours when arsphenamine was given.

Sulpharsphenamine—The great advantage of this preparation is that the injection can be given in a concentrated aqueous solution subcutaneously and intramuscularly. That sulpharsphenamine is curative for lues has been frequently demonstrated, but it is generally believed that it is inferior to arsphenamine and neoarsphenamine. As intravenous injections of sulpharsphenamine seem to cause more reactions than the intramuscular, this preparation should be confined to intramuscular and subcutaneous injections. It is of great value in congenital lues and in adults where intravenous injections of arsphenamine and neoarsphenamine cannot be given. Some investigators claim that this preparation has a superior penetrative power and is of greater advantage in cerebrospinal syphilis or neurosyphilis in general. A course of sulpharsphenamine consists of ten weekly intramuscular injections of 0.6 gram each. There seems to be more danger of producing an exfoliative dermatitis with sulpharsphenamine than with arsphenamine or neoarsphenamine.

Silversalvarsan was introduced into the United States from Germany three years ago. It is objectionable because of the staining, and as it seems to have no advantage over arsphenamine its use in this country is being discontinued. At the University of California Hospital we used over one hundred tubes, but have not used it for over two years.

Tryparsamide—In 1922 this drug was released for clinical studies. It was recommended for neurosyphilis and received favorable reports, especially in cases of general paralysis of the insane. In 1923 the drug was sent to various clinics for study. Of 695 cases reported in the literature, 463 showed definite improvement. Many of these cases were general paralysis of the insane, and a large number were able to return to work with mental restoration. In many cases the blood Wassermann became negative. The general opinion is that the gold chloride curve and the serology in general are not remarkably changed by tryparsamide. The use of tryparsamide began in November, 1924, at the University of California luetic clinic. Eight cases were treated, four of which were tabes, two general paralysis of the insane, and two central nervous system syphilis. It is too soon to report on these cases. From the literature there seems to be no doubt that tryparsamide has a definite tonic effect, and that it is a valuable drug in the treatment of neuro-syphilis, but should be combined with arsphenamine and mercury.

Bismuth preparations are a new weapon in the treatment of syphilis. These preparations are of great value in late lues. They clear up luetic manifestations quicker than mercury, but more slowly than the arsenicals. Bismuth compounds should not be used to abort lues. In secondary lues the bismuth preparations are inferior to arsphenamines, both in clearing up the eruption and in changing the Wassermann reactions. In tertiary syphilis the clinical manifestations disappear rapidly and the serum reactions change more readily than in secondary syphilis. The greatest value of the bismuth preparations seems to be in cases where mercury and arsphenamine have failed. Reactions after bismuth injections are milder than those after mercury and arsphenamine. The usual course of bismuth therapy consists of ten weekly intramuscular injections. Our experiences with bismuth have been with the preparations put out by the Dermatological Research Laboratories and Metz Laboratories.

A definite routine in the treatment of syphilis cannot be advantageously followed. However, there are certain limitations of treatment that can be formulated. At the University of California Medical

School we give our patients with primary syphilis three intravenous arsphenamines (0.6 gm.) at three-day intervals, three at five-day intervals, and two at weekly intervals—eight in all. This is followed by eighteen weekly intragluteal injections of mercury salicylate (1-2 grs.). After a rest period of one to three months the patient is given another course of six weekly arsphenamine (0.6 gm.) injections and eighteen mercury salicylates. If the Wassermann reaction has been negative throughout and the spinal fluid is negative one to three months after the last treatment, all specific therapy is discontinued. The patient is kept under observation for a period of two years, and if he remains clinically and serologically well he is discharged as probably cured.

In secondary syphilis we aim to give courses of treatment consisting of six weekly arsphenamines (0.6 gm.) and eighteen weekly mercury salicylate injections. We always give at least one such course of treatment after the patient is clinically and serologically well.

In tertiary or late syphilis the treatment must be regulated according to the tissues that are involved. In cardiac or central nervous system syphilis we aim to give from one to six months of mercury and iodide before any arsenicals are used. Tertiary syphilis without any demonstrable central nervous system or cardiac lesions is treated in the same way as secondary syphilis.

In patients who continue to show a positive Wassermann reaction after three or four courses of arsphenamine and mercury therapy we resort to bismuth or sulpharsphenamine. We have had several such cases become serologically negative after the use of one or the other of these two products over a short period of time.

This procedure as outlined is a conservative one, and in the main is that advocated by Fordyce of New York. Pollitzer of New York was the first in this country to advocate the so-called intensive treatment of syphilis. He gives three injections of arsphenamine (0.6 to 0.9 gm.) at twenty-four-hour intervals. Arsenic is eliminated from the body in about twelve hours. By this intensive method the tissues are bathed in a fairly high concentration of the drug for about three days, and it more nearly approaches the sterilization anticipated by Ehrlich than in any other method. Of course, it should only be used in very early syphilis, with the object of aborting the infection. (Pollitzer, however, uses this method in practically all types of syphilis.)

DISCUSSION

HARRY E. ALDERSON, M. D. (490 Post Street, San Francisco)—In discussing this paper I wish to emphasize the fact that salvarsan treatment of lues has only been practiced for fifteen years and it is yet too early to pass upon the permanency of many of the reported cures. The question of when a luetic may be dismissed is most difficult to decide. Blood Wassermanns, spinal fluid tests, cardiovascular and other examinations, evaluation of the sufficiency of the courses given, all require most careful consideration. It is not an uncommon experience to have the various laboratory tests give negative results and the patient later on show positive serological or clinical evidence of the persistence of syphilis. Time alone will tell. We are now seeing many luetics who years ago were dismissed as cured after one or two salvarsan injections or long courses of mercury and iodides by mouth only, and at that time negative Wassermanns. At the skin and syphilis clinic of the Stanford University Medical School we treat over two hundred syphilitics weekly. We maintain special day and night clinics for this purpose. For the period between January 1, 1925, and July 29, 1925, we have given 3313 injections of neoarsphenamine and 1318 injections of bismuth.

As for the different drugs now used in lues therapy, we find that in usefulness they rank as follows: arsphenamine, bismuth, mercury, and iodine. Most of our patients are ambulatory, and they receive neoarsphenamine. When it is possible to place a patient in bed we prefer arsphenamine. This we do with all our pregnant syphilitics with very satisfactory results.

Bismuth injections are given as part of our treatment both in early and in late lues, many of the latter with persistent Wassermanns responding satisfactorily. I feel that bismuth is superior to mercury as an anti-syphilitic remedy. We have given over three thousand injections of this drug.

For many years we have been having our patients use mercury inunctions. Where carried out intelligently and faithfully they are very efficacious. However, many patients cannot be depended upon to do this, so we often resort to mercury injections. At present we are using principally bichloridol and mercury salicylate.

As for the iodides, we never administer them in early lues. After the first year of the disease or in "precocious lues" we give the drug as it has always been given—in ascending drop doses. In addition to giving these four drugs, we endeavor to put our patients in as good condition as possible by means of physiotherapy exercise and proper hygiene.

In private as well as clinic practice we find that we cannot standardize our lues therapy, because there are so many variable conditions and factors. Our treatment is individualized. At present we endeavor to keep our *early cases* under constant treatment for the first year, *allowing no rest periods,* excepting where organic conditions call for them. Moore's report on 1500 cases of lues seemed to show that relapses were in direct proportion to the amount of rest from treatment given. Judiciously applied, intensive therapy should be carried out during the first year of the disease. Naturally, we frequently check up on our patients clinically and serologically, and make sure that therapy is doing no harm. Unless we find some special contra-indications, we give continuous courses of treatment as follows: First, arsphenamine, then bismuth or mercury, then arsphenamine followed by bismuth or mercury, and so on. On account of the tendency that both mercury and bismuth have to produce gingivitis, we do not give these drugs together or consecutively. We always have a course of neoarsphenamine in between. After the first year, of course, our treatment is not so intensive unless active complications develop. On account of lack of space I have omitted discussing in detail the different preparations mentioned by the authors, but I agree in the main with their observations.

ALBERT MEADS, M. D. (1706 Broadway, Oakland, California)—Regardless of whether or not one feels that it is for the best interests of the patient, the fact remains that the majority of people infected with syphilis are being treated by general practitioners. This is because most of the public have never heard of a syphilographer, because the modern medical man knows something about the diagnosis and treatment of syphilis, because of the great assistance of the Wassermann test in diagnosing some cases, and because most medical men now have mastered the technique of intravenous and intramuscular medication. Therefore, because syphilis is being so generally treated, a paper such as Morrow's should be instructive to all who attempt any treatment whatsoever. The facts brought out concerning the standard drugs, backed up by a large clinical experience, will prove extremely valuable, and allow those of less experience to adopt a routine method of treatment which can be intelligently followed out. The value of mercury properly used, the treatment of the so-called "Wassermann-fast" cases, the placing of bismuth therapy where it belongs, and the comparison of the better known arsenicals, all

have been touched upon. After reading this paper one will feel that he has been brought up to date—as far as the therapeutics of syphilis is concerned—and can safely proceed with the recommendations coming from such a source.

SAMUEL AYRES, JR., M. D. (Westlake Professional Building, Los Angeles)—I should like to add a word or two on measures to prevent untoward effects of the drugs described by Morrow. While it is true that the average individual can take the drugs and the doses outlined, certain patients suffer serious consequences even when the drugs are properly prepared and administered. Nothing can be done to avoid entirely the occasional case of drug idiosyncrasy except to give a small initial dose. Before each administration of any arsenical preparation it should be ascertained if any itching or eruption followed the previous treatment, and if so the dose should be reduced and the interval lengthened. A routine phenolsulphonephthalein test by revealing a subnormal kidney function should serve as a warning to use great care in the administration of mercury or bismuth. The urine should be examined for albumen at least every two or three weeks. I have seen two fatalities from failing to observe these precautions and one near fatality in a patient who showed a moderately low 'phthalein output. Preliminary routine urinalysis is not enough. The kidneys may have been severely damaged at some time, with subsequent replacement of kidney tissue, by scar tissue or hydronephrotic sac and a cessation of the urinary evidences of inflammation. It would be better to allow such a patient to live five or ten years longer and die of syphilis rather than kill him with mercury. Because of occasional injury to the optic nerve, a careful ophthalmoscopic examination should always precede the administration of tryparsamide, and should be repeated if any suggestion of impaired vision occurs during treatment. These precautions may seem self-evident, but when large numbers of patients are being treated, especially in clinics, it is easy to become hurried and careless. The old admonition that if you cannot do your patient any good, at least do him no harm deserves to be called to mind occasionally.

LE ROY H. BRIGGS, M. D. (384 Post Street, San Francisco)—I was very glad to have Doctor Morrow speak such good words for mercury. In the treatment of late visceral and nerve syphilis, I have found it invaluable and of equal worth to salvarsan. In my hospital service, as well as with the more intelligent class of private patients, inunctions are used exclusively. In the one case the patients are rubbed, or rub, under the eye of an attendant, and in the other the patient is made to understand and practice the proper *modus operandi*. Such individuals must be kept under observation, especially as to gums, intestinal tract, and kidneys. The presence of microscopic blood in the urinary sediment is the earliest indication of renal irritation, and should be looked for at least every other week. Barring a severe nephritis, I know of no contra-indication to mercury.

Salvarsan is used equally vigorously in conjunction with mercury, but has more contra-indications. Liver disease, whether syphilitic or non-syphilitic, precludes its use. In syphilis of the aorta or myocardium it must be used with the greatest caution, in small doses, and preferably preceded by a course of mercury. In certain rapidly progressing nerve lesions, again great caution must be observed. Since the use of sodium thiosulphate for salvarsan dermatitis, this complication has lost considerable of its menace.

Dr. George G. Eitel has given to the Medical School of the University of Minnesota the handsome sum of $80,000. The gift is in the form of life insurance policies payable at his death, with ample funds provided by Doctor Eitel to pay the remaining premiums. In a letter to President Lotus D. Coffman of the university, the donor expresses the desire that his gift shall be "for the development of loan scholarships for the benefit of medical students." Thus an annual income of nearly $5000, plus all loans returned by student borrowers, is provided for, which amount may tide not a few, but many, medical students over hard places in their medical school days.—Federation Bulletin.

CARCINOMA OF THE COLON, NOT INCLUDING THE RECTUM

By SAMUEL ROBINSON *

Patients with sufficiently severe toxemia from complete cancerous obstruction of the bowel will die in spite of any operation, however well chosen or well executed.

Resection and anastamosis in a single operation done in the presence of obstruction is generally fatal.

Even in partial obstruction, resection and anastamosis generally fail unless the bowel has been cleared previously of its contents either by repeated irrigations when such are possible, or by a preliminary colostomy or ileostomy. Fecal retention after anastamosis is toxic; distention may cause necrosis about the suture.

Infection is the most common cause of death following resection of tumors of the colon.

Anastamoses are apt to leak, causing general or local peritonitis if the suture is imperfect; if the blood supply to the anastamosing ends is a poor one, or if it is cut off during the operation. In many patients leakage resulting from the pressure of distention proximal to the suture line causes deaths which might have been obviated by a post-operative ileostomy.

Masses of inflammatory glands may be excluded from the portion resected, but malignant glands if not removed generally hasten the disease to an early termination. Resections not designed to include most of the involved glands rarely cure, hence the large number of fatalities within the first two years.

Neglect of preoperative preparation; a choice of operation inconsistent with the patient's condition; lack of provision to avoid post-operative distention; disregard of blood supply during anastamosis; and poorly executed intestinal suturing are errors which lead to disaster.

DISCUSSION *by L. W. Hotchkiss, Santa Barbara; Andrew Stewart Lobingier, Los Angeles; Emmet Rixford, San Francisco.*

WE RECOGNIZE a great national endeavor to teach the nonmedical citizen symptoms of cancer. The surgeon meanwhile beseeches the physician promptly to recognize cancer when it is there. The physician continues to bemoan the lack of surgical skill to which his patient is ultimately subjected. These factors explain to a degree the high mortality in malignant disease of the colon, which are augmented by late consultation by the patient, misinterpretation of symptoms by the diagnostician, illy developed, illy chosen, or poorly executed surgical technique. Intestinal cancer is generally accessible, circumscribed, slow-growing, not prone to metastasize, and therefore removable. It may be said that the patient, the physician, and the surgeon are more responsible for fatalities than is the cancer itself.

To encourage the layman to earlier consultation by familiarizing him with the symptoms of this particular type of cancer is difficult. Gastric indigestion, constipation or diarrhea, mucus or blood in the stools, loss of weight, anemia, backache, rumbling bowels—these symptoms when occurring in certain combinations suggest the onset of intestinal cancer; and yet most of them are expressions also of many minor functional disorders of too common occurrence to cause the patient alarm.

If we would seek the earlier diagnosis of cancer of the colon through education of the public, I contend that we may better do so by instructing the

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